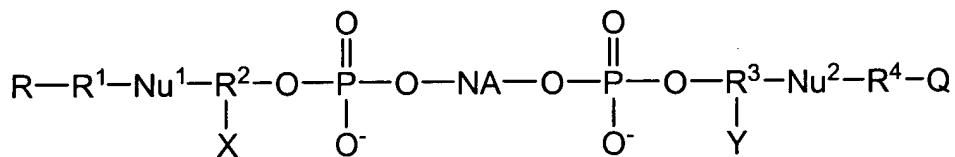


1 **Listing of Claims:**

2 32. (Previously Presented) A compound having the formula



4 wherein,

5 NA is a nucleic acid chain comprising nucleic acid monomers selected
6 from the group consisting of natural nucleic acids, modified
7 nucleic acids and combinations thereof;

8 R¹, R², R³ and R⁴ are linker moieties independently selected from the
9 group consisting of substituted or unsubstituted alkyl and
10 substituted or unsubstituted heteroalkyl;

11 Nu¹ and Nu² are members independently selected from the group
12 consisting of nucleotide residues and nucleoside residues;

13 R is a molecular energy transfer donor;

14 Q is a molecular energy acceptor; and

15 X and Y are the same or different and are non-nucleic acid stabilizing
16 moieties that interact to bring R and Q into operative proximity,
17 thereby enabling transfer of energy from R to Q.

1 33. (Previously Presented) The compound according to claim 32,
2 wherein said molecular energy transfer donor is a fluorophore.

1 34. (Previously Presented) The compound according to claim 32,
2 wherein said molecular energy acceptor is a fluorescence quencher.

1 35. (Previously Presented) The compound according to claim 32,
2 wherein X and Y are both hydrophobic moieties.

- 1 36. (Previously Presented) The compound according to claim 35,
2 wherein X and Y are members independently selected from the group consisting of
3 saturated hydrocarbons, unsaturated hydrocarbons, steroids, fatty acids, fatty alcohols and
4 hydrophobic peptides.

- 1 37. (Previously Presented) The compound according to claim 32,
2 wherein natural nucleic acids are members selected from the group consisting of
3 deoxyribonucleotides, ribonucleotides and combinations thereof.

- 1 38. (Previously Presented) The compound according to claim 37,
2 wherein said modified nucleic acids are peptide nucleic acids.

- 1 39. (Previously Presented) The compound according to claim 32,
2 wherein said nucleic acid monomers are joined by linkages that are members
3 independently selected from the group consisting of phosphodiesters and modified
4 phosphodiesters.

- 1 40. (Previously Presented) The compound according to claim 39,
2 wherein said modified phosphodiesters are members selected from the group consisting
3 of phosphorothioates and phosphoramidates.

- 1 41. (Previously Presented) The compound according to claim 32,
2 wherein said nucleic acid chain further comprises a hybridization enhancing moiety.

- 1 42. (Previously Presented) The compound according to claim 41,
2 wherein said hybridization enhancing moiety is a member selected from the group
3 consisting of intercalating agents, minor groove binders and modified exocyclic bases.

- 1 43. (Previously Presented) The compound according to claim 32,
2 wherein X and Y are independently attached to members selected from the group
3 consisting of a natural base of said nucleic acid chain, a modified base of said nucleic

4 acid chain, a 3'-hydroxyl group of said nucleic acid chain, a 5'-hydroxyl group of said
5 nucleic acid chain, a 2'-hydroxyl group of said nucleic acid chain, and a linkage joining
6 nucleic acid groups in said nucleic acid chain.

1 44. (Previously Presented) The compound according to claim 32,
2 wherein said compound is immobilized on a solid surface.

1 45. (Previously Presented) A method for amplifying a polynucleotide,
2 wherein a compound according to claim 32 is a primer in said method, said method
3 comprising:

4 (a) hybridizing said primer to said polynucleotide; and
5 (b) amplifying said polynucleotide.

1 46. (Previously Presented) The method according to claim 45,
2 wherein said amplifying is a member selected from the group consisting of polymerase
3 chain reaction (PCR), nucleic acid sequence based amplification (NASBA), strand
4 displacement amplification (SDA) and combinations thereof.

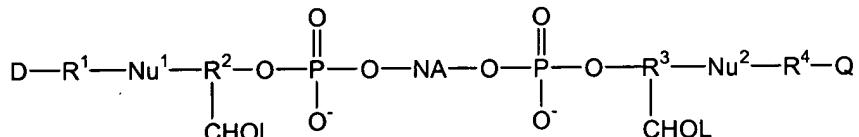
1 47. (Previously Presented) A method for detecting or quantitating a
2 nucleic acid, wherein the compound according to claim 32 is used as a probe, said
3 method comprising:
4 (a) hybridizing said compound to said nucleic acid; and
5 (b) detecting a change in fluorescence of said compound, thereby
6 detecting or quantitating said nucleic acid .

1 48. (Previously Presented) The method according to claim 47,
2 wherein said method comprises a member selected from the group consisting of 5'-
3 nuclease assay, rolling circle amplification and combinations thereof.

1 49. (Previously Presented) A kit for quantitating nucleic acid, said kit
2 comprising a compound according to claim 32.

1 50. (Previously Presented) A compound having the formula:

2



4 wherein,

5 CHOL is a cholesterol derivative;

6 R¹, R², R³ and R⁴ are linker moieties independently selected from the
7 group consisting of substituted or unsubstituted alkyl and
8 substituted or unsubstituted heteroalkyl;

9 Nu¹ and Nu² are members independently selected from the group
10 consisting of nucleotide residues and nucleoside residues;

11 NA is a nucleic acid sequence;

12 D is a donor of light energy; and

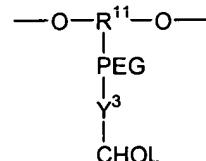
13 Q is a quencher of light energy,

14 wherein the CHOL moieties interact to bring D and Q into operative
15 proximity, thereby enabling transfer of energy from D to Q.

1 51. (Previously Presented) The compound according to claim 50,

2 wherein R¹ and R² are independently selected and have structures according to the
3 formula:

4



6 wherein,

7 R¹¹ is a member selected from the group consisting of substituted or
8 unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

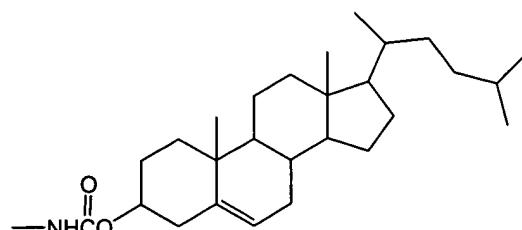
9 PEG is polyethylene glycol;
10 Y³ is an organic functional group adjoining said PEG to said CHOL.

1 52. (Previously Presented) The compound according to claim 51,
2 wherein said PEG has from about 2 to about 20 ethylene glycol subunits.

1 53. (Previously Presented) The compound according to claim 51 in
2 which R¹¹ is substituted or unsubstituted alkyl.

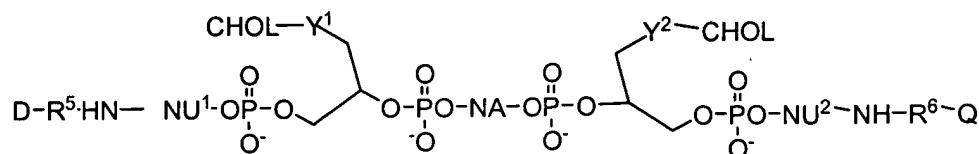
1 54. (Previously Presented) The compound according to claim 53,
2 wherein R¹¹ is C₁-C₆ substituted or unsubstituted alkyl.

1 55. (Previously Presented) The compound according to claim 51,
2 wherein Y³-CHOL has the structure:



1 56. (Previously Presented) The compound according to claim 50,
2 wherein Nu¹ and Nu² are nucleotides having an exocyclic amine group to which -R¹-D
3 and -R⁴Q are attached, respectively.

1 57. (Previously Presented) A compound having the formula:



2 3 wherein,

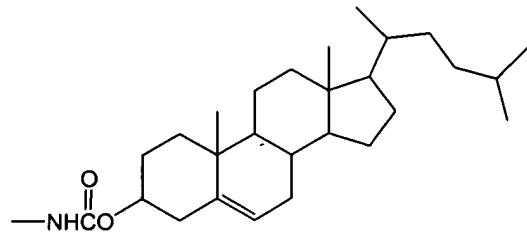
4 NA is a nucleic acid sequence;
5 Nu¹ and Nu² are members independently selected from the group
6 consisting of nucleotide residues and nucleoside residues;
7 Y¹ and Y² are linking groups independently selected from the group
8 consisting of substituted or unsubstituted alkyl and substituted or
9 unsubstituted heteroalkyl;
10 R⁵ and R⁶ are linking groups independently selected from the group
11 consisting of substituted or unsubstituted alkyl and substituted or
12 unsubstituted heteroalkyl;
13 D is a donor of light energy; and
14 Q is a quencher of light energy,
15 wherein each CHOL interacts with the other CHOL to bring D and Q into
16 operative proximity, thereby enabling transfer of energy from D to Q.

1 58. (Previously Presented) The compound according to claim 57,
2 wherein Y¹ and Y² are members independently selected from substituted or unsubstituted
3 heteroalkyl.

1 59. (Previously Presented) The compound according to claim 58,
2 wherein Y¹ and Y² are polyethylene glycol.

1 60. (Previously Presented) The compound according to claim 59,
2 wherein said polyethylene glycol has from about 2 to about 20 ethylene glycol subunits.

61. (Previously Presented) The compound according to claim 57, wherein Y¹-CHOL and Y²-CHOL have the structure:



62. (Previously Presented) The compound according to claim 57, wherein Nu¹ and Nu² are nucleotides having an exocyclic amine group to which -R⁵-D and -R⁶-Q are attached, respectively.